



1. (Amended) A method for fitting a tubular roll shell (2) of a roll (1) in a paper or  
board machine with slide bearings, said method comprising supporting the roll shell (2) on a  
5 stationary roll shaft (3) by means of hydrostatic slide bearing elements (4a, 4b, 4a', 4b', 5a, 5b, 5a',  
5b') acting on the roll shell (2) in radially opposite directions at least in the direction of a primary  
plane or a plane co-directional with a primary loading (F) and a plane substantially lateral to the  
plane co-directional with the primary loading (F), and said slide bearing elements (4a, 4b, 4a', 4b',  
5a, 5b, 5a', 5b') being loaded hydraulically by means of a pressure fluid, wherein a hydrostatic  
10 pressure of lateral bearing elements (4a, 4b, 4a', 4b') acting in radially opposite directions on the  
roll shell (2), in a direction substantially lateral to a plane co-directional with the primary loading  
(F), is adjusted by means of a regulator (20) having feedback connection from main bearing  
elements (5a, 5b, 5a', 5b') acting in the direction of a plane co-directional with the primary loading  
(F) to comply at a predetermined ratio with a maximum hydrostatic pressure of the main bearing  
15 elements (5a, 5b, 5a', 5b) acting on the roll shell (2).

2. (Amended) A method as set forth in claim 1, wherein a one of said lateral  
bearing elements (4b, 4b') is supplied with a constant pressure ( $P_s$ ) and an other of said lateral  
bearing elements (4a, 4a') is supplied by way of the regulator (20) with a control pressure  
20 depending on the maximum pressure of the main bearing elements (5a, 5b, 5a', 5b).

3. (Amended) A method as set forth in claim 1, wherein the lateral bearing elements (4a, 4a') have a control pressure which is about 0,5 to about 1 times the maximum pressure of the main bearing elements (5a, 5b, 5a', 5b').

5 4. (Amended) A method as set forth in claim 1, wherein the regulator (20) comprises a mechanical hydraulic valve.

5. (Amended) A method as set forth in claim 4, wherein the mechanical hydraulic valve (20) comprises:

10 a cylindrical space (21) diametrically smaller at one end than at the other end;  
a valve stem (22) axially movable lengthwise in the cylindrical space (21);  
two slides (23, 24) fitted in the cylindrical space (21) in connection with the valve stem (22), a first (23) of said slides being mounted on a first end of the valve stem (22) in a diametrically smaller cylindrical space (21a), and a second (24) of said slides, which is provided  
15 with a spring (26), being mounted, in connection with the valve stem (22), in a diametrically larger cylindrical space (21b, 21c), whereby a pressure fluid is delivered to at least one lateral bearing element (4a, 4a', 4b, 4b'); and  
a regulator element (25), which is fitted in connection with a second end of the valve stem (22) as well as in connection with a feed line (P) for a hydraulic pressure fluid, and that the first  
20 slide (23) is subjected to a hydrostatic control pressure consistent with a hydrostatic pressure acting on hydrostatic slide bearing elements (5a, 5a', 5b, 5b') which work against the spring (26) and act on a roll shell (2) in a plane co-directional with a primary loading (F) for operating the

valve stem (22) and the regulator element (25) in such a way that the hydraulic pressure fluid has access from the feed line (P) into the larger cylindrical space (21b, 21c) of the valve (20) in view of regulating a supply pressure delivered to at least one lateral bearing element (4a, 4a', 4b, 4b').

5           6.       (Amended)   A method as set forth in claim 1, wherein the regulator (20) comprises:

an electrically-controlled valve, said electrically-controlled valve receiving a control from one of a pair of pressure detectors (52, 53) located along a transit path (8, 8', 9', 10) established between the electrically-controlled pressure detectors (52, 53) and the regulator (20), said  
10 electrically-controlled valve being mounted in connection with the main bearing elements (5a, 5a', 5b, 5b') acting on the roll shell (2) in the direction of a plane co-directional with the loading (F).

7.       (Amended)   A method as set forth in claim 1, wherein the regulator (20) is fitted in a feed line (P) of one lateral bearing element (4a), said lateral bearing element (4a) being further  
15 provided with a control device (42), whereby a hydraulic pressure is suppliable to another opposite lateral bearing element (4b), and whereby the shell remains laterally immobilized relative to the roll shaft (3).

8.       (Amended)   A roll for fitting a tubular roll shell (2) of a roll (1) in a paper or  
20 board machine, said roll shell (2) being supportable on a stationary roll shaft (3) by means of hydrostatic slide bearing elements (4a, 4b; 4a', 4b'; 5a, 5b; 5a', 5b') acting on the roll shell (2) in radially opposite directions at least in the direction of a first plane or a plane co-directional with a

primary loading (F) and a plane substantially lateral to the plane co-directional with the primary loading (F), said slide bearing elements (4a, 4b, 4a', 4b', 5a, 5b, 5a', 5b') being loadable hydraulically by means of a pressure fluid, comprising:

5 a regulator (20) for adjusting a hydrostatic pressure of lateral bearing elements (4a, 4b; 4a', 4b') acting in radially opposite directions on the roll shell (2) in a direction substantially lateral to a plane co-directional with the primary loading (F), said regulator (20) having feedback connection from main bearing elements (5a, 5b, 5a', 5b') acting in the direction of a plane co-directional with the primary loading (F) to comply with a predetermined ratio with maximum hydrostatic pressure of the main bearing elements (5a, 5b, 5a', 5b') substantially acting on the roll  
10 shell (2).

9. (Amended) A roll as set forth in claim 8, wherein a one of said lateral bearing elements (4b, 4b') is suppliable with a constant pressure and an other of said lateral bearing elements (4a, 4a') is suppliable by way of a regulator (20) with a control pressure depending on  
15 the maximum pressure of the main bearing elements (5a, 5b, 5a', 5b').

10. (Amended) A roll as set forth in claim 8 wherein the regulator (20) comprises a mechanical hydraulic valve.

11. (Amended) A roll as set forth in claim 10, wherein mechanical hydraulic valve (20) comprises:

a cylindrical space (21) diametrically smaller at one end than at the other end;

a valve stem (22) adapted to be axially movable lengthwise in the cylindrical space (21);

5 two slides (23, 24) fitted in the cylindrical space (21) in connection with the valve stem (22), a first (23) of said slides being mounted on a first end of the valve stem (22) in a diametrically smaller cylindrical space (21a), and a second (24) of said slides, which is provided with a spring (26), being mounted, in connection with the valve stem (22), in a diametrically larger cylindrical space (21b, 21c), whereby a pressure fluid is suppliable to at least one lateral  
10 bearing element (4a, 4a', 4b, 4b'); and

a regulator element (25), which is fitted in connection with a second end of the valve stem (22) as well as in connection with a feed line (P) for a hydraulic pressure fluid, and that the first slide (23) is subjectable to a hydrostatic control pressure consistent with a hydrostatic pressure acting on hydrostatic slide bearing elements (5a, 5a', 5b, 5b') which work against the spring (26)  
15 and act on a roll shell (2) in a plane co-directional with a primary loading (F) for operating the valve stem (22) and the regulator element (25) in such a way- that the hydraulic pressure fluid has access from the feed line (P) into the larger cylindrical space (21b, 21c) of the valve (20) in view of regulating a supply pressure delivered to at least one lateral bearing element (4a, 4a', 4b, 4b').

20 12. (Amended) A roll as set forth in claim 8, wherein the regulator (20) comprises:  
an electrically controlled valve, said electrically-controllable valve obtaining a control from one of a pair of pressure detectors (52, 53) located along a transit path (8, 8', 9', 10) established

between the pressure detectors (52, 53) and the regulator (20), said electrically-controlled valve being mounted in connection with the main bearing elements (5a, 5a', 5b, 5b') acting on the roll shell (2) in the direction of a plane co-directional with the loading (F).

5           13.    (Amended)   A roll as set forth in claim 8, wherein the regulator (20) is connected with a feed line (P) of one lateral bearing element (4a), said one lateral bearing element (4a) being further provided with a control device (42) for delivering a hydraulic pressure to another opposite lateral bearing element (4b), wherein the shell remains laterally immobilized relative to the roll shaft (3).

10           14.    (New)    A method as set forth in claim 1, wherein the lateral bearing elements (4a, 4a') have a control pressure which is about 0,5 to about 0,8 times the maximum pressure of the main bearing elements (5a, 5b, 5a', 5b').

15           15.    (New)           A method for fitting a tubular roll shell (2) of a roll (1) in a paper or board machine with slide bearings, said method comprising the steps of:

              supporting the roll shell (2) on a stationary roll shaft (3) by means of hydrostatic slide bearing elements (4a, 4b, 4a', 4b', 5a, 5b, 5a', 5b') acting on the roll shell (2) in radially opposite directions at least in one of a direction of a primary plane or a plane co-directional with a primary loading (F) and a plane substantially lateral to the plane co-directional with the primary loading (F),

              loading said slide bearing elements (4a, 4b, 4a', 4b', 5a, 5b, 5a', 5b') hydraulically by means

of a pressure fluid, and

adjusting a hydrostatic pressure of a plurality of lateral bearing elements (4a, 4b; 4a', 4b') acting in radially opposite directions on the roll shell (2), in a direction substantially lateral to a plane co-directional with the primary loading (F), by means of a regulator (20), said regulator (20) having a feedback connection from a plurality of main bearing elements (5a, 5b, 5a', 5b') acting in the direction of a plane co-directional with the primary loading (F) in order to comply at a predetermined ratio with a maximum hydrostatic pressure of the main bearing elements (5a, 5b, 5a', 5b) acting on the roll shell (2).